



Figure 1: Purple-coloured urine of a 58-year-old man with an indwelling catheter.

Purple urine bag syndrome

A 58-year-old man with an indwelling urinary catheter began producing urine with a deep purple colour (Figure 1). The urine was alkaline (pH 7.8), and *Proteus mirabilis* urinary tract infection was diagnosed. This so-called purple urine bag syndrome resolved after treatment with ceftazidime. The phenomenon occurs over a 2-year period in about 8% of patients with indwelling urinary catheters.¹ The syndrome is often associated with a urinary tract infection caused by *Providencia* bacteria, *Escherichia coli*, *P. mirabilis* or *Klebsiella pneumoniae*. These bacteria produce an enzyme (indoxyl phosphatase/sulfatase) that converts the excreted indoxyl sulfate in the urine into red- and blue-coloured compounds (indirubin and indigo), which mix to form the purple colour.

Tryptophan normally exists in the intestine and is degraded into indoxyl sulfate. This in turn is absorbed and excreted in the urine. Constipation, which prolongs tryptophan transit time in the intestine, results in increased indoxyl sulfate levels in urine and is a risk factor for purple urine bag syndrome. Other risk factors include alkaline urine (which predisposes to the growth of contributory microbes) and the use of catheters made of polyvinyl chloride plastic.¹ Women are at greater risk than men for this condition.

Urine colour may change for many reasons. Purple urine can be associated with intestinal intussusception.² A green colour can occur with *Pseudomonas* urinary tract infections or if a patient has taken methylene blue, amitriptyline, indomethacin, doxorubicin or propofol. A deep orange colour can be associated with treatment with rifampin or warfarin.

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2. Pillai RN, Clavijo J, Narayanan M, et al. An association of purple urine bag syndrome with intussusception. *Urology* 2007;70:812.e1-2.

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